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### FEDERAL - STATE - PRIVATE

# SNOW SURVEY and WATER SUPPLY FORECASTS for ARIZONA

UNITED STATES DEPARTMENT of AGRICULTURE...SOIL CONSERVATION SERVICE,

SALT RIVER VALLEY WATER USERS ASSOCIATION

and

ARIZONA AGRICULTURAL EXPERIMENT STATION

Data included in this report were obtained by the agencies named above in cooperation with the Federal, State and private organizations listed on the last page of this report.

APR. 1, 1961

#### UNITED STATES DEPARTMENT OF AGRICULTURE - SOIL CONSERVATION SERVICE

To Recipients of Cooperative Snow Survey and Water Supply Forecast Reports:

The climate of the cultivated and populated areas of the West is characterized by relatively dry summer months. Such precipitation as occurs falls mostly in the winter and early spring months when it is of little immediate benefit to growing crops. Fortunately, most of this precipitation falls as mountain snow which stays on the ground for months, melting later to sustain streamflow during the period of greatest demand during late spring and summer. Thus, nature provides in mountain snow an imposing water storage facility.

The amount of water stored in mountain snow varies from place to place as well as from year to year and accordingly, so does the runoff of the streams. The best seasonal management of variable western water supplies results from fore-knowledge of the runoff.

A snow survey consists of a series of about ten samples taken with specially designed snow sampling equipment along a permanently marked line, about 1000 feet in length, called a snow course. The use of snow sampling equipment provides snow depth and water equivalent values for each sampling point. The average of these values is reported as the snow survey measurement for a snow course.

Snow surveys are made monthly or semi-monthly beginning in January or February and continue through the snow season until April, May or June. Currently more than 1400 western snow courses are measured each year. These measurements furnish the key data for water supply forecasts.

By relating snow survey measurements taken over a period of years to spring-summer runoff during the same period, relationships have been developed which make it possible to forecast seasonal runoff several months in advance of occurrence. In order to make a forecast, once a forecast relationship has been developed, the maximum snow water content at previously selected key snow courses is usually entered in the forecast relationship. More accurate forecasts are often obtained when other factors such as soil moisture, base flow and spring precipitation are considered and included in the forecast relationships.

Listed below are the Federal-State-Private Cooperative Snow Survey and Water Supply Forecast reports available for the West which contain detailed information on snow survey measurements, streamflow forecasts, reservoir storage, soil moisture and other guide data to water management and conservation decisions.

#### PUBLISHED BY SOIL CONSERVATION SERVICE

	PUBLI	SHED BY SUIL	CONSERVATION SERVICE	
REPORTS	15	SUED	LOCATION	COOPERATING WITH
RIVER BASINS				
COLORAGO AND STATE OF UTAH	. MONTHLY	(JAN. MAY)	SALT LAKE CITY, UTAH	UTAH STATE ENGINEER AND OTHER AGENCIES
COLUMBIA	. MONTHLY	(JANMAY)	BOISE, IOAHO	IDAHO STATE RECLAMATION ENGINEER
UPPER MISSOURI AND STATEOF MONTANA	. MONTHLY	(FEBMAY)	BOZEMAN, MONTANA	MONT. AGR. EXP. STATION
WEST-WIDE	ОСТ. 1,	APR. 1. MAY 1_	PORTLANO, OREGON	ALL COOPERATORS
STATES				
ALASKA	. MONTHLY	(MAR MAY)	PALMER, ALASKA	ALASKA S.C.D.
AR I ZON A		- APR.1)		. SALT R. VALLEY WATER USERS ASSOC. ARIZ. AGR. EXP. STATION
COLORADO ANO NEW MEXICO	. Mon THLY	(FEBMAY)	FORT COLLINS, COLORAGO	.COLO. AGR. EXP. STATION COLO. STATE ENGINEER N. MEX. STATE ENGINEER
I OAHO	. MONTHLY	(FEBMAY)	BOISE, TOAHO	. IOAHO STATE RECLAMATION ENGINEER
NEVAOA	. MONTHLY	(FEBAPR.)	RENO. NEVAOA	NEVAGA DEPT. OF CONSERVATION AND NATURAL RESOURCES DIVISION OF WATER RESOURCES
ORE GON	. MONTHLY	(YAMMAY)	PORTLAND, OREGON	ORE, AGR. EXP. STATION OREGON STATE ENGINEER
WASHINGTON	MONTHLY	(FEBMAY)	SPOKANE, WASHINGTON	WN. STATE DEPT. OF CONSERVATION
WYOMING.	MONTHLY	(FEB. JUNE)	CASPER, WYOMING	.WYOMING STATE ENGINEER
Copies of these various report	s may be	secured from:	Head, Water Supply Force Soil Conservation Servic 209 S. W. Fifth Ave., Po	e.
		PUBLISHED BY	OTHER AGENCIES	
REPORTS	1:	SSUED		AGENCY
BRITISH COLUMBIA	_ MONTHLY	(FEBJUNE)		RIGHTS BR., DEPT. OF LANOS AND T BLOG., VICTORIA, B.C., CANAOA
CALIFORNIA	_ MONTHLY	(FEBMAY)	CALIF, DEPT. OF WA	TER RESOURCES, SACRAMENTO, CALIF.

#### FEDERAL - STATE - PRIVATE

COOPERATIVE

## SNOW SURVEY and WATER SUPPLY FORECASTS for ARIZONA

(Salt, Verde, Gila and Part of Lower Colorado River Basin)

Report prepared by

Richard W. Enz, Snow Survey Supervisor

SOIL CONSERVATION SERVICE

POST OFFICE BOX 929

PHOENIX. ARIZONA

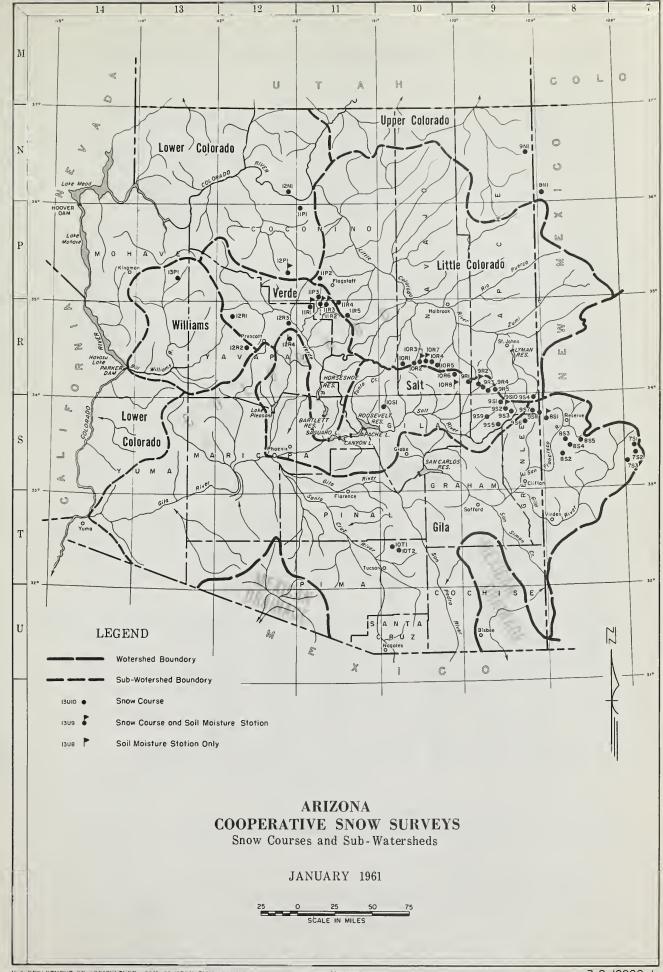
Issued by

ROBERT V. BOYLE
STATE CONSERVATION IST
SOIL CONSERVATION SERVICE

VICTOR I. CORBELL

PRESIDENT
SALT RIVER VALLEY WATER USERS ASSOCIATION





#### INDEX to SNOW COURSES and SOIL MOISTURE STATIONS

NUMBE	R3H	NAME	SEC	TWP	RGE ∜÷%÷	ELEVATION	RIVER BASIN
11P3 9S1		Antelope Park Baldy (p)	29 28	19N 7N	8E 27E	7300 9125	VerdeDiscontinued Salt-Little Colorado
10T1		Bear Wallow	6	125	16E	8100	Gila
986		Beaver Head	13	4N	30E	8000	Salt-Frisco
983		Big Lake Knoll	2	5n	28E	8800	Salt-Frisco-Little Colorado Discontinued
753		Black Canyon	8	138	11₩***	6790	GilaDiscontinued
	.0 <b>-</b> ⊁			6N	27E	9100 8400	Salt-Little Colorado
12Nl 12Rl		Bright Angel Camp Wood	34 3	33N 16N	3E 6W	5700	Lower Colorado Williams-Verde
10R3		Canyon Creek	18	11N	15E	7500	Salt-Little ColoradoReplaced
							by 10R7-M
10R7		Canyon Creek #2	18	11N	15E	7500	Salt-Little Colorado
11R2 12P1		Casner Park Chalender	19 27	18n 22n	8E	6930	Verde Verde
10R8		Corduroy Creek	Tat. 3)100	22N 7 t N - T.on	3E ng.110008 W.	7100 § 6000	Salt
989			Lat. 330	5'N. Lon	ig.109°45'W.		Salt Not Read
		_					
8s3 9s7		Corner Mountain Coronado Trail	7 26	10s 5N	17W**** 30E	8850 8000	Gila-Frisco Not Read Salt-Frisco
10R2		Elk	31	11N	14E	7600	Salt-Little ColoradoDiscontinued
<b>10</b> R6		Forest Dale	2	9N	21E	6430	Salt-Little Colorado
11P2		Fort Valley	22	22N	6E	7350	Verde-Little Colorado
9R5		Ft. Apache	18	7N	27E	9160	Salt-Little Colorado
851		Frisco Divide	31	6s	20W****	8000	Frisco-Gila
12R4		Gaddes Canyon Gentry	11 36	15N 11N	2E <b>1</b> 5E	7600 7600	Verde-Agua Fria
10R5 11Pl		Grand Canyon	21	30N	4E	7500 7500	Salt Lower Colorado
				-			
11R5		Happy Jack	30	17N	9E	7630	Verde
10R4 7S2		Heber (p) Inman	28 6	11N 11S	15E 10W****	7600 7800	Salt-Little Colorado Gila
12R2		Iron Springs	22	14N	3W	6200	Williams-Verde
982		Maverick Fork (p)	13	6n	27E	9050	Salt
9R4		McKay Peak	13	7N	24E	8250	Salt Not Read
9R2		McNary	14	8n	23E	7200	Salt-Little Colorado
9R1		Milk Ranch	28	8N	23E	7000	Salt
12R3 8S2		Mingus Mountain Mogollon	3 2	15N 11S	2E 19W****	7100 7000	Verde-Agua Fria Frisco-Gila
002		nogorion	2	110	1/11/1/1/1	1000	111500-4114
11R4		Mormon Lake	13	18N	8E	7350	Verde-Little Colorado
11R3		Mormon Mountain	14	18N	8E	7500	Verde
11R1 8S4		Munds Park N-Bar Lake	7 16	18N 10S	7E 17W****	6500 8600	Verde Gila Not Read
8S5		Negrito	6	103	16W****	8200	Gila Not Read
984 985		Nutrioso	23	6N	30E	8500 § 7800	Salt-Frisco-Little Colorado Salt
9N1		Pacheta Roof Butte	15	8N	ick, Ariz.		Little Colorado Not Read
1012		Rose Canyon	15	125	16E	7300	Gila
988	}	State Line	15 6	<b>6</b> S	21W****	8000	Gila-Frisco
751		Taylor Creek	20	105	10W****	7850	Gila
9R3	}	Trout Creek	5	7N	24E	6400	Salt Not Read
8N1		Washington Pass			ong.108°50'W	§ 8600	Little ColoradoNot Read
13P1 10R1		Willow Ranch Woods Canyon	16 <b>1</b> 5	21N	11W	5000 7640	Williams
TONI	•	HOUGS CATIVOIT	15	<b>1</b> 1N	13E	1040	Salt-Little Colorado Discontinued
1051		Workman Creek	33	6N	14E	6900	Salt

<sup>\*</sup> Soil Moisture Station only

₩₩₩ NEW MEXICO PRINCIPAL MERIOIAN

₩₩₩₩ NAVAJO BASE

米米 ALL IN GILA AND SALT RIVER BASE AND MERIDIAN EXCEPT WHERE OTHERWISE INDICATED.

 $<sup>{\</sup>tt M}$  - Soil Moisture Station installed on or in vicinity of snow course.

<sup>3</sup> UNSURVEYED

<sup>(</sup>p) Storage gage installed on or in vicinity of snow course.

#### ARIZONA WATER SUPPLY OUTLOOK

#### April 1, 1961

SNOW COVER: Heavy snow fell the last few days of March in the Flagstaff area on the Verde River Watershed. The snow pack is now 133% of normal there. The storm diminished as it proceeded eastward. There was moderate snow in the Heber and McNary area, but in the White Mountains and Gila headwaters the storm had little effect. Snow cover on the Salt River is 106% of average and the Gila is down to 17%. This is just the reverse of the conditions existing March 1, when the snow cover was very low on the Verde and relatively high on the Gila.

RESERVOIR STORAGE: Although there was a decline of 42,000 acre feet since March 15 on the Salt River Project reservoirs, they still contain 135% of average for April 1. Lake Pleasant and Lyman Reservoir are about normal, while San Carlos is virtually empty. Show Low Lake has increased slightly, but is still only 6% of capacity. The Salt River Project reservoirs are 57% of capacity.

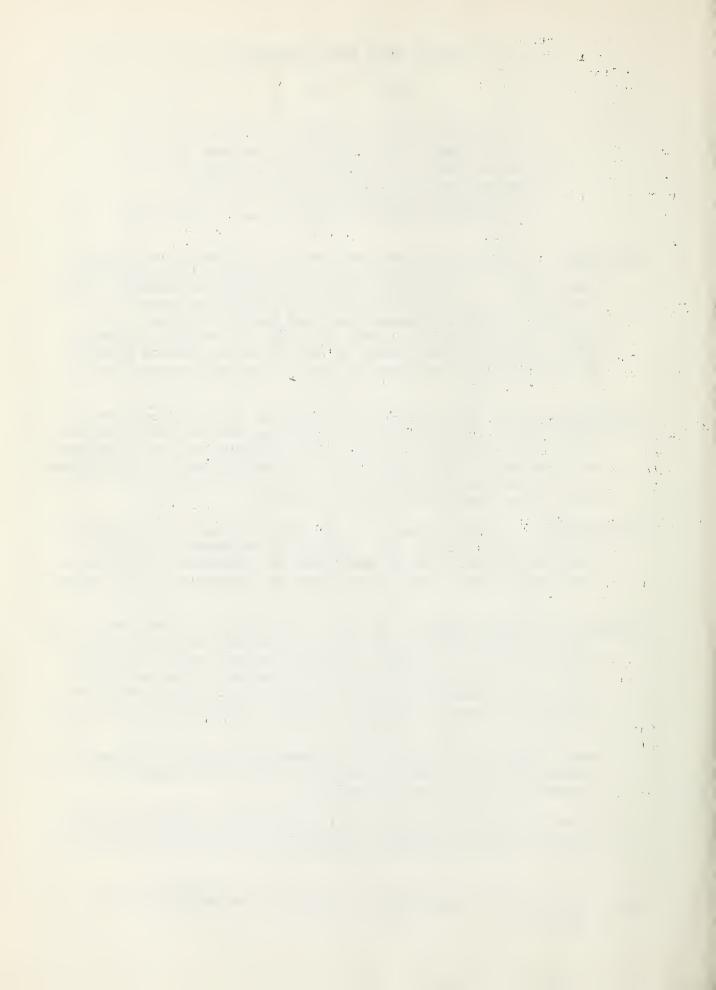
SOIL MOISTURE: The soil moisture on the Verde Watershed is now very good, while the Upper Gila is dry. The Salt River Watershed is dry at lower elevations and fairly wet higher up. Additional precipitation would produce good runoff on the Verde, but would have little effect on the Gila.

STREAM FLOW AND WATER SUPPLY: The recent storm has raised the stream flow forecast on the Verde from 24,000 to 34,000 acre feet. Before this storm, the Verde was flowing 200 cubic feet per second. Five days later it was flowing 1800 cubic feet per second. Continued below average precipitation on the Gila and San Francisco Watersheds has reduced their forecasts to 40% of average. The Little Colorado River forecast is only 19% of average.

Water supplies for irrigation are generally adequate in Arizona, with the exception of the San Carlos Project and the Gila Valley where substantial pumping will be required.

Farmers are urged to contact their County Agent, irrigation company, or Soil Conservation Service technician on how to stretch their water supply.

NOTE: THIS IS THE FINAL SNOW SURVEY & WATER SUPPLY FORECAST BULLETIN FOR 1961.



#### STREAM FLOW FORECASTS - APRIL 1, 1961

The following summarized runoff forecasts are based principally on mountain snow cover and on the assumption that precipitation and temperature will be near average from the present time to the end of the forecast period. Appreciable deviations from normal of temperature and/or precipitation will correspondingly modify these forecasts.

	SEASONAL FORECA	STREAM F		THOUSAN IL - MA		CRE FEET USIVE
SUB-WATERSHED, STREAM and STATION	Forecast Runoff 1961	Percent 15-Year Average	Meas 1960	ured Ru 1959	1958	1943-57 Average
Salt River at Intake	50.0	40	139.9	22.1	345.1	125.3
Tonto River above Roosevelt	4.0	49	6.8	1.5	19.7	8.2
Verde River above Horseshoe	34.0	60	24.1	18.3	79.9	56.5
Gila River at Virden	5.5	40	19.6	3.7	74.2	13.7
Frisco River at Clifton	5.5	40	17.4	4.5	94.3	13.7
Little Colorado River above Lyman Dam*	0.9	19	6.8	0.3	21.0	4.8

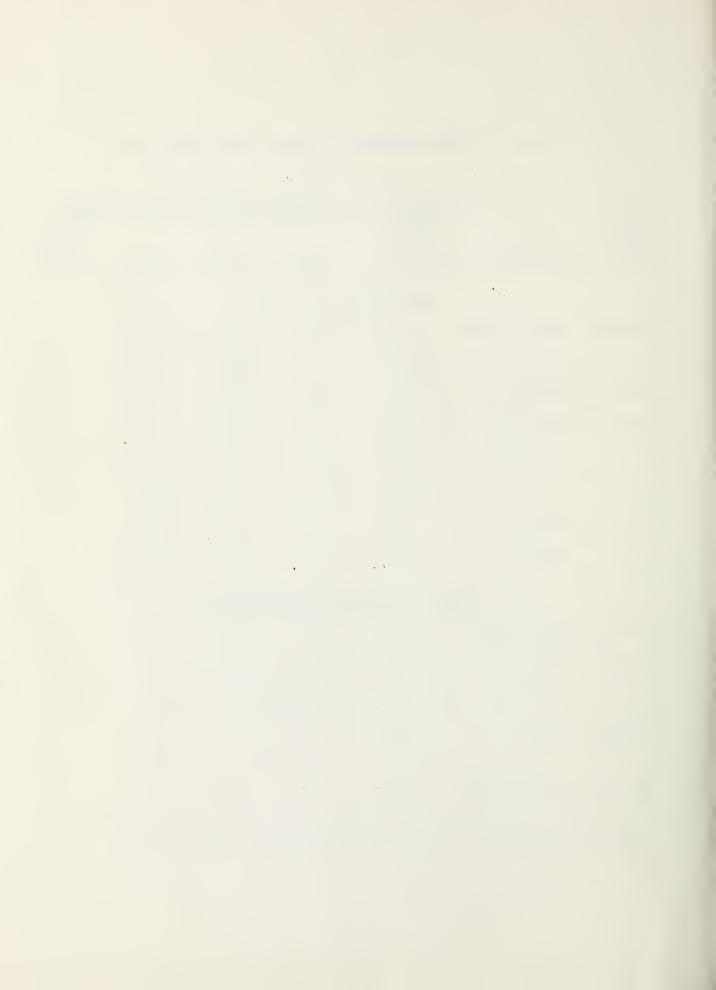
<sup>\*</sup>Forecast period for Little Colorado River above Lyman Dam is for April-June, inclusive.

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#### STATUS OF ARIZONA RESERVOIR STORAGE - ABOUT APRIL 1, 1961

SUB- WATERSHED		USABLE CAPACITY	USABLE	STORAGE .	- 1000s ACR	E FEET 15-Year
and/or		1000s				Average
STREAM	RESERVOIR	AC. FT.	1961	1960	1959	1943-57
		GTLA RTV	ER SUB-WATER	ISHED		
Agua Fria	Lake Pleasant	163.8	26.6	49.7	18.3	29.8
Gila	San Carlos	1,205.0	0.3	214.7	80.8	107.9
Verde	Bartlett	180.0	29,5	145.0	71.3	70.9
Verde	Horseshoe	143.0	16.3	75.9	43.3	30.6%
Salt	Roosevelt	1,381.6	816.9	1,021.9	405.1	471.7
Salt	Apache	245.1	214.6	235.4	242.0	209.7
Salt	Canyon	57.9	45.3	57.7	53,4	46.3
Salt	Saguaro	69.8	63.2	65.9	47.7	49.6
	LO	WER COLORA	OO RIVER SU	3-WATERSHE	<u>D</u>	
Colorado	Lake Havasu	619.4	566.7	547.0	567.1	582.8
Colorado	Lake Mohave	1,810.0	1,683.7	1,568.0	1,703.0	1,491.8%
Colorado	Lake Mead	27,207.0	18,212.0	19,171.0	20,739.0	16,438.0
Little Colorado	Lyman	30.6	6.8	16.7	18.7	6.8
Little Colorado	Show Low Lake	5.1	0.4	5,1	0.1	on 64 68

<sup>\*</sup>Average is for less than 15 years of record in the 1943-57 period.



#### WATER INVENTORY

#### SALT RIVER VALLEY SYSTEM

#### APRIL 1, 1961

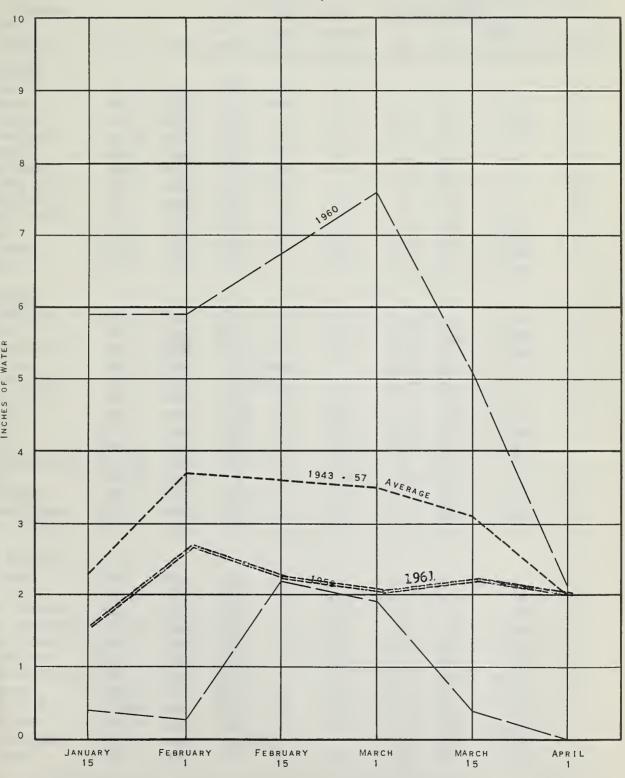
	3,000,000				
	2,500,000				
	2,000,000				
HONE FEET	1,500,000	AVERAGE SUPPORT	PLY	ANTICIPATED	Average Summer Runoff
	1,000,000		Average Summ Runoff Average Spri Runoff		Forecasted Runoff (April - May)
	500,000		Average Stor	age	Present Storage
	0			+ Fore	on Present Storage

+ Average Summer Runoff.

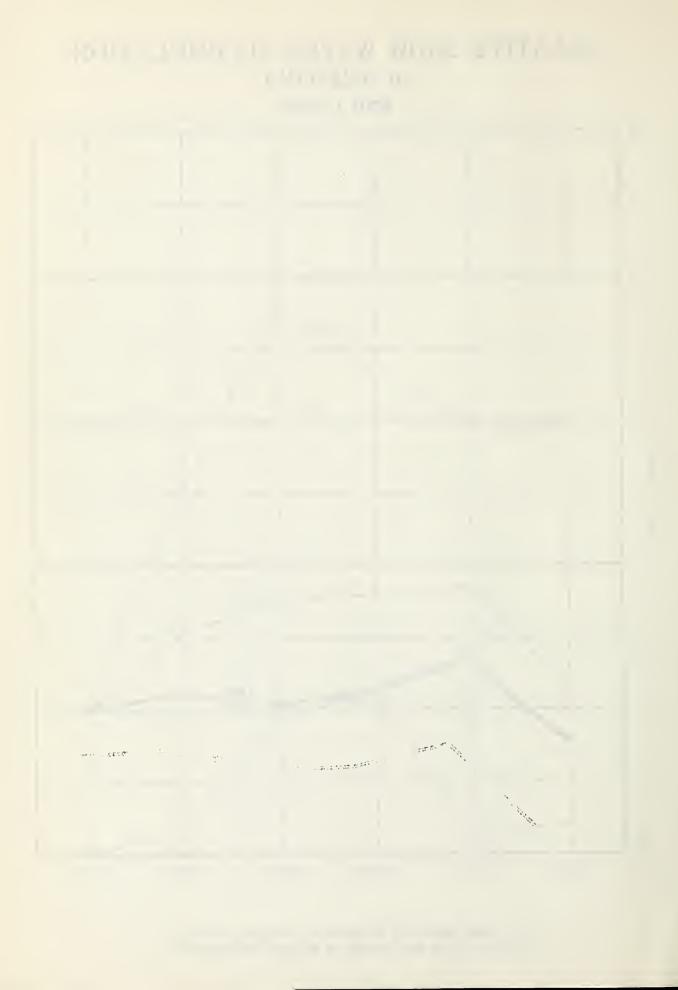
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## RELATIVE SNOW WATER ACCUMULATION in ARIZONA

APRIL 1, 1961



This graph represents the average snow water content on eleven selected snow courses on Arizona Sub-Watersheds.



			SNOW COVER MEASUREMENTS						
				1961	naga nganganigat, Mirikadan Nijimi			ST RECORD	
SUB-WATERSHED and			Date	Snow	Water	Water	Conte	nt (In.) 1943-57	Prior Yrs. of
SNOW COURSE	No.	Elev.	of Survey		Content (In.)	1960	1959	Average	Record
GILA RIVER						-			
Redstone Trail	907	0600	3/31	17	5.7				0
Nutrioso	8S7 9S4	8600 8500	•	urvey		0.00 A	0.0	0.5	19
Bear Wallow	10T1	8100	3/31	5	1.1	0.0	0.0	0.9**	11
Frisco Divide	8S1-M		3/31	0	0.0	10,5	0.0	0.5	20
Ice King	8S6	8000	3/31	20	5.2	0.0	0.0		0
State Line	988	8000	3/31	0	0.0		0.0	0.5	20
Coronado Trail	9S7	8000	-	urvey		0.0		1.1	19
Beaver Head	9S6		3/31	T	0.1	0.0 T	0.0	0.7	20
Taylor Creek	_	8000	3/31	Ī	T		0.0	0.0	15
Inman Treek	751	7850	3/31	T T	Ť	0.0	0.0	0.0**	11
	7S2	7800	3/31	3	0.6	0.0	0.0	0.3**	11
Rose Canyon	10T2	7300	3/31	2	0.5	0.0	0.0	0.3**	7
Mogollon	882	7000	0,02	_	•••	0.0	0.0	0.5	,
SALT RIVER									
Ft. Apache*	9R5	9160	3/30	17	5.1	7.6	0.0	6.4**	10
Baldy*	981	9125	3/30	15	4.9	6.1	0.0	3.4**	10
Maverick Fork	982	9050	3/30	16	4.9	8.2	0.0	5.5**	8
Nutrieso	984	8500	-	urvey		0.0	0.0	0.5	19
Coronado Trail	987	0003		urvey		0.0	0.0	1.1	19
Beaver Head	986	8000	3/31	T	0,1	T	0.0	0.7	20
Pacheta	985	7800	3/31	0	0.0	0.0	0.0	0.6**	8
Gentry	10R5	7600	3/30	5	1.3	0.0	0.0	0.3**	7
Heber	10R4	7600	3/30	7	1.8	0.9	0.0	0.4**	7
Canyon Creek #2	10R7-M	7500	3/30	5	0.9	T	0.0		3
McNary	9R2-M	7200	3/30	9	1.0	0.0	0.0	0.2	20
Milk Ranch	9R1	7000	3/30	6	0.7	0.0	0.0	0.0	17
Workman Creek	1081	6900	3/31	3	1.4		0.0	1.2**	7
Forest Dale	1081 10R6	6430	3/30	3	0.4	0.0	0.0	0.0	20
		0.00							
VERDE RIVER									0
Snow Bowl	11P4	10260	3/31	27	6.4				0
Happy Jack	11R5	7630	3/30	14	2.2	0.0	0.0	1.3**	6
Gaddes Canyon	12R4	7600	3/31	12	2.4	2.6	T	1.6**	6
Mormon Mountain	11R3-M	7500	3/31	14	2.5	T	0.0	2.4**	8
Mormon Lake*	11R4	7350	3/31	11	2.1	0.0	0.0	3.5**	
Fort Valley*	11P2	7350	3/31	8	2.3	0.0	0.0	1.2**	
Mingus Mountain	12R3	7100	3/31	6	1.1	0.0	0.0	0.0**	12
Chalender	12P1-M	7100	3/31	2	0.9	0.0	0.0	1.6**	14
Casner Park	11R2-M	6930	3/31	13	2.3	0.0	0.0	1.0**	
Munds Park	11R1-M	6500	3/31	9	1.8	0.0	0.0	0.6**	7
Huius Fark									
Iron Springs*	12R2	6200		Survey		0.0	0.0	0.0**	

<sup>\*</sup>On Adjacent Drainage.

<sup>\*\*</sup>Average is for less than 15 years of record in the base period,



#### ARIZONA SNOW SURVEYS - ABOUT APRIL 1, 1961

			SNOW COVER MEASUREMENTS								
				1961				PAST RECORD			
SUB-WATERSHED			Date	Snow	Water	Water	Conte	nt (In.)	Prior		
and			of		Content			1943-57	Yrs. of		
SNOW COURSE	No.	Elev.	Survey	(In.)	(In.)	1960	1959	Average	Record		
WILLIAMS RIVER											
	1000							0.00	1/		
Iron Springs Camp Wood*	12R2	6200	3/31	urvey 0	0.0	0.0	0.0	0.0%*	14		
Willow Ranch	12R1	5700	3/31	σ	0.0	0.0	0.0	0.0**	14 8		
WILLOW KAUCU	13P1	5000	2/ 21	U	0.0	0.0	0.0	0.0**	٥		
LOWER COLORADO R	IVER										
Bright Angel	12N1	8400	No St	urvey				8.9**	11		
Grand Canyon	1171	7500	3/31	6	2.1	0.0	0.0	1.2**	13		
Fort Valley	11P2	7350	3/31	8	2,3	0.0	0.0	1.2**	14		
Chalender*	12P1-M	7100	3/31	2	0.9	0.0	0.0	1.6**	1.4		
LITTLE COLORADO	RIVER										
Ft. Apache	9R5	9160	3/30	17	5.1	7.6	0.0	6.4**	10		
Baldy	981	9125	3/30	15	4.9	6.1	0.0	3.4**	10		
Nutrioso	984	8500		urvey		0.0	0.0	0.5	19		
Happy Jack*	11R5	7630	3/30	14	2.2	0.0	0.0	1.3**	6		
Gentry	10R5	7600	3/30	5	1.3	0.0	0.0	0.3**	7		
Heber	10R4	7600	3/30	7	1.8	0.9	0.0	0.4**	7		
Canyon Creek #2	10R7-M	7500	3/30	5	0.9	T	0.0	~~ ~~	3		
Mormon Mountain	11R3-M	7500	3/31	14	2.5	T	0.0	2.4**	8		
Mormon Lake	11R4	7350	3/31	11	2.1	0.0	0.0	3.5**	11		
Fort Valley	11P2	7350	3/31	3	2.3	0.0	0.0	1.2**	14		
McNary	9R2-M	7200	3/30	9	1.0	0.0	0.0	0.2	20		
Forest Dale	10R6	6430	3/30	3	0.4	0.0	0.0	0.0	20		

<sup>\*</sup>On Adjacent Drainage.

\*\*Average is for less than 15 years of record in the base period.

1 22 . . . . 12 1 -3.4 . . -\_ ,

#### LIST OF SNOW SURVEYORS

SNOW COURSE	SURVEYOR
Baldy	SCS and SRVWUA
Bear Wallow	Forest Service - Angus Porter
Beaver Head	N. A. Josh
Bright Angel	National Park Service
Camp Wood	Mrs. C. C. Merritt
Canyon Creek #2	SCS and SRVWUA
Casner Park	SCS and SRVWUA
Chalender	Forest Service - MacIntyre
Coronado Trail	Forest Service - Bill Brainard
Forest Dale	Fort Apache Reservation - Boyer and Endfield
Frisco Divide	Forest Service - Joe Clayton
Ft. Apache	SCS and SRVWUA
Fort Valley	Rocky Mountain Forest & Range Experiment Station
Gaddes Canyon	SCS - Bill Gray
Gentry	SCS and SRVWUA
Grand Canyon	National Park Service - Robt. Heyder
Happy Jack	Emil O. Ryberg
Heber	SCS and SRVWUA
Ice King	James R. Wray
Inman	C. H. McCauley
Iron Springs	Ernest Saxby
McNary	Fort Apache Reservation - Boyer and Endfield
Maverick Fork	SCS and SRVWUA
Milk Ranch	Fort Apache Reservation - Boyer and Endfield
Mingus Mountain	SCS - Bill Gray
Mogollon	James R. Wray
Mormon Lake	SCS and SRVWUA
Mormon Mountain	SCS and SRVWUA
Munds Park	SCS and SRVWUA
Nutrioso	Forest Service - Bill Brainard
Pacheta	Foch Phillips
Redstone Trail	James R. Wray
Rose Canyon	Forest Service - Angus Porter
Snow Bowl	Forest Service - Jay Shoemaker
State Line	Forest Service - Joe Clayton
Taylor Creek	C. H. McCauley
Willow Ranch	Tiny Miller
Workman Creek	Rocky Mountain Forest & Range Experiment Station



## The Following Organizations Cooperate in the Arizona Snow Survey Work

#### FEDERAL

Department of Agriculture

Soil Conservation Service

Forest Service
Apache Forest
Coconino Forest
Coronado Forest
Gila Forest
Kaibab Forest
Prescott Forest

Rocky Mountain Forest and Range Experiment Station

Department of Commerce Weather Bureau Arizona Section

Department of Interior

Bureau of Reclamation Region III

Geological Survey
Arizona District

Bureau of Indian Affairs
Fort Apache Reservation

National Park Service
Grand Canyon National Park

Gila Water Commissioner Safford, Arizona

#### STATE

Arizona Agricultural Experiment Station

#### IRRIGATION PROJECTS

Salt River Valley Water Users' Association Phoenix, Arizona

San Carlos Irrigation and Drainage District Coolidge, Arizona

#### PRIVATE

Southwest Lumber Mills, Inc. McNary, Arizona

Other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE P. O. BOX 929 PHOENIX, ARIZONA

OFFICIAL BUSINESS

## 

Federal State-Primate Cooperature Snow Surveys

Federal - State - Private
COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"The Conservation of Water begins with the Snow Survey"